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NATIONAL ENERGY BOARD
REPORT TO
THE GOVERNOR IN COUNCIL

**In the Matter of the Application under
The National Energy Board Act of**

Trans Canada Pipe Lines Limited

***To Construct and Operate Certain
Additional Pipe Line Facilities***

May 1969

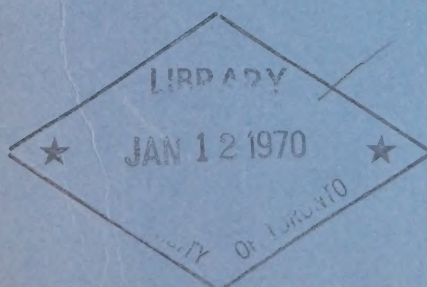


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To Construct and Operate Certain
Additional Pipe Line Facilities

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THE APPLICATION

NATIONAL ENERGY BOARD

IN THE MATTER OF an application by Trans-Canada Pipe Lines Limited for a certificate under Part III of the National Energy Board Act to construct and operate additional pipe line facilities.

File No. 8-1-1-44

HEARD at Ottawa on 25 and 26 March 1969.

BEFORE:

Douglas M. Fraser, Vice-Chairman
Maurice Royer, Member
J.G. Stabback, Member

APPEARANCES:

J.M. Cameron and A.D. Angus	for Trans-Canada Pipe Lines Limited
Robin Scott and T.W. Lane	for the Attorney General of the Province of Ontario
H. Knowles	for The Consumers' Gas Company
J.W.S. McOuat	for Union Gas Company of Canada, Limited
J.M. Hendry	for the National Energy Board

THE APPLICATION

Trans-Canada Pipe Lines Limited ("Trans-Canada" or "the Applicant"), a company incorporated by Special Act of the Parliament of Canada, made application on 31 October 1968 to the National Energy Board ("the Board") for a certificate of public convenience and necessity under Part III of the National Energy Board Act with respect to the Applicant's proposed construction program in 1969. At the commencement of the hearing on 25 March 1969, Trans-Canada asked leave of the Board to amend its application to reflect increased requirements of the Applicant since the time of filing of the original application. The most significant change was a proposed sale to Tennessee Gas Pipeline Company ("Tennessee Gas") of 25 billion cubic feet ("Bcf")* and the associated cancellation of an import from Tennessee Gas of 4.9 Bcf during the period from 1 November 1969 to 31 October 1970. This proposed sale had been offset in part by a net decrease in domestic requirements and fuel with the overall result of an increase in requirements from Western Canada of approximately 20 Bcf during the contract year commencing 1 November 1969. As no person had objection or comment to make with regard to the filing of the amendment by Trans-Canada, the Board granted leave for the amendment to be made.

The facilities which the Applicant proposes to construct in 1969 and for which a certificate is requested, consist mainly of approximately 194.7 miles of looping of 36-inch

*All volumes stated in this Report are at 14.73 psia and 60°F.

main line in Alberta, Saskatchewan and Manitoba and approximately 17.9 miles of looping of 36-inch line on the extension to Emerson, Manitoba. The Applicant is also requesting approval to upgrade, by hydrostatic testing and sandblasting, approximately 461.8 miles of 34-inch pipe line in Saskatchewan and Manitoba, approximately 674.5 miles of 30-inch pipe line between Winnipeg, Manitoba, and Maple, Ontario, and approximately 110.5 miles of 20-inch pipe line on the Maple-Niagara line. In addition the Applicant proposes to upgrade, by hydrostatic testing and sandblasting, approximately 17.9 miles of 30-inch pipe line in the Province of Manitoba on the Emerson extension. The application also includes certain additions to existing compressor stations in Saskatchewan and the upgrading, by hydrostatic testing, of yard piping in a total of 9 compressor stations in Saskatchewan, Manitoba and Ontario.

Details of the application, as amended, are set forth in Appendix 2 to this Report.

INTERVENTIONS

Interventions were received from the Department of the Attorney General of the Province of Ontario ("Attorney General for Ontario"), The Consumers' Gas Company ("Consumers'"), and Union Gas Company of Canada, Limited ("Union"). The Minister

of Mines and Minerals of the Province of Alberta informed the Board by letter that the Government of the Province of Alberta did not object to the application and did not intend to oppose it in any way.

In his intervention, the Attorney General for Ontario asked the Board, in disposing of the application, to have regard for the following considerations and, where proper in its opinion, to make appropriate provisions therefor in the certificate which might be issued to approve the application:

"respecting the Niagara extension

- (a) having regard to the present and future utilization of the line by the Company until the expiry of the subsisting licence to import natural gas on or about the 31st day of October, 1970, and the purposes thereafter for which the Company may use the line, whether or not the proposed expenditures for sandblasting and hydrostatic testing in 1969 are premature;
- (b) in the interests of present and future safety and the avoidance of undue sterilization of lands adjacent to the easement, and having regard to the existing design, construction and condition of the pipeline, there have occurred since construction thereof sufficient changes in density indexes or

classification of locations which would require restricting the intended maximum allowable operating pressure, or alternatively the strengthening of the pipeline under applicable pipeline code;

- (c) whether or not the work of sandblasting and hydrostatic testing will be carried out in such a way as to minimize interference, if any, with land drainage, field - crops and the pollution of ground water.

respecting the Northern Ontario section

- (d) whether or not the sandblasting to be performed on this pipeline in 1969 will produce immediate net benefits or is premature;
- (e) whether or not the pipeline could be looped and the proposed work thereby avoided or speedily carried out thereafter without interruption to gas supply;
- (f) whether looping of the line will be appreciably delayed by the sandblasting proposed."

The intervention of the Attorney General for Ontario also queried whether the benefits of the proposed sandblasting and hydrostatic testing programs would be sufficiently enduring that the expenditure should be capitalized thereby increasing the Applicant's earnings base and, if such is proper, whether a rate of depreciation equal to the service life of the pipeline would be proper or whether the expenditure should be treated

as a deferred charge and amortized in some other manner. The intervention also queried whether the cost estimates per mile for hydrostatic testing and sandblasting reveal differentials which are not accounted for by differing pipe sizes or other factors.

Consumers', being a large customer of Trans-Canada's and very much dependent at the present time on Trans-Canada for its source of gas supply, intervened to enable it to ascertain the adequacy of the facilities of Trans-Canada, upon completion of the proposed construction, to meet Consumers' requirements for its gas supply.

Because of its interest in Trans-Canada's ability to supply and plans for supplying gas from Western Canada to Union and other customers in Eastern Canada, Union intervened in order to have the right to participate in the hearing through the examination of witnesses and exhibits and by calling witnesses and adducing evidence in its own behalf.

At the hearing, both Consumers' and Union supported the application because the facilities requested by Trans-Canada would increase the capability and efficiency of the Applicant's system to deliver natural gas to its Ontario markets.

MARKETS

Evidence

Trans-Canada estimated its sales of natural gas for each of the two years commencing 1 November 1968 and 1 November 1969 would be 647 billion cubic feet (Bcf) and 739 Bcf respectively. (Details of the estimated requirements are shown in Appendix 3 to this report). The estimates for the year commencing 1 November 1969 assumed that Trans-Canada would import no United States natural gas and that all its supplies would be obtained from Western Canada.

The Applicant submitted evidence that the additional facilities required in 1969-70 to provide specifically for the proposed export of 25 Bcf of gas to Tennessee Gas during the year commencing 1 November 1969 would continue to be required after completion of the export in order to meet an increase in the forecast market requirements east of Manitoba of some 35 Bcf commencing 1 November 1970. This assessment was based upon sales expected to be made under existing contracts and under contracts which were being negotiated at the time of the hearing.

Conclusion

The Board is satisfied that the market requirements estimated by the Applicant are reasonable.

SUPPLY

Evidence

Trans-Canada presented evidence concerning reserves for all fields for which it has gas purchase contracts, including fields covered by permits issued by the Alberta and Saskatchewan Governments to others and committed to Trans-Canada. The Applicant estimated initial proved and probable reserves under its control to be 19,944 Bcf as of 31 October 1968. Cumulative production to 31 October 1968 was 3,083 Bcf, indicating remaining proved and probable reserves under its control of 16,861 Bcf.

At the time of the hearing, the Applicant held Alberta Permit TC-68-8 which expires on 31 October 1993 and which authorizes the removal from the Province of 19,096 Bcf during the term of the licence or a remaining volume of some 16,313 Bcf as of 31 August 1968.

In addition to the Alberta permit held by the Applicant in its own name, it also purchases gas from other companies which have Alberta permits authorizing the removal from the Province of 239 Bcf of which some 172 Bcf remained as of 31 August 1968. Expiry dates of these permits range from 31 October 1980 to 31 May 1990.

Finally the Applicant has a gas purchase contract with Steelman Gas Limited and Provo Gas Producers Limited for gas produced from the Steelman Plant in Saskatchewan. These companies have been issued Saskatchewan Gas Export Permit #1 for a total of 55 Bcf or a remaining volume of 40 Bcf, covering all gas produced by the plant for a term expiring on 2 February 1990.

In summary, the Applicant has provincial permit arrangements supported by purchase contracts which cover a total remaining supply as of 31 August 1968 of 16,525 Bcf and an aggregate maximum daily amount as of 15 November 1968 of 2,819 million cubic feet (MMcf) per day for the contract year 1969 - 1970.

Trans-Canada filed an illustrative deliverability schedule comparing the availability of all gas under its control with its annual and peak-day requirements for each of the years ending 31 October from 1969 to 1993 inclusive. This schedule was predicated on the Applicant's estimate of proven reserves plus 50 per cent of probable reserves for each field and pool under contract. It showed requirements levelled after 1972 and, on this basis, a comparison of the total maximum-day volumes of gas available with the total peak-day requirements upon the Applicant's system indicates the total deliverability

would fall short of meeting annual and peak-day requirements in 1982 by 23 Bcf and 429 MMcf respectively. By 31 October 1993, the cumulative annual deficiencies would total 4,605 Bcf, while the annual and peak-day deficiencies in that year would be 663 Bcf and 2,142 MMcf respectively.

Conclusions

The Board considers that the policy Trans-Canada has pursued to date in purchasing reserves has been satisfactory. Assuming that this policy is continued, and having in mind the various facts concerning supply of gas in the territory in which the Applicant purchases gas, the Board is confident that Trans-Canada can and will contract for the additional gas reserves necessary to offset the deficiencies now apparent. In any event, the reserves of natural gas under contract to the Applicant and the maximum daily deliverability under these contracts are sufficient to support the estimated annual sales and peak-day requirements to be served by the Applicant's installed facilities and the additional facilities specified in this application.

FACILITIES

Evidence

The locations of the proposed new facilities are shown on the map attached as Appendix 1 to this Report and these facilities are described in more detail in Appendix 2. Estimated costs associated with the work included in the application are summarized below:

	<u>Estimated Cost</u>
Compressor Stations:	
36,300 additional horsepower located at 3 stations	\$ 7,116,000
Upgrading by hydrostatic testing of yard piping at 9 compressor stations	1,193,000
Pipe Line:	
212.6 miles of 36-inch OD main line loop	37,449,600
Upgrading by hydrostatic testing and/or sandblasting, 1,264.7 miles	<u>6,672,900</u>
Total Cost	\$ 52,431,500

The Applicant submitted data for both the Trans-Canada and the connecting Great Lakes Gas Transmission Company ("Great Lakes") systems ("the combined systems"), for the operating year 1969-70 which demonstrated, on a sectional basis, the ability of the combined systems to

meet the daily, seasonal and annual requirements, assuming the loss of a unit at the critical location in each section. (See Appendices 4, 5 and 6 of this Report).

In response to the Board's enquiry at the hearing, the Applicant submitted information showing those items which it considered pre-investment in the 1969 construction program. These comprised the 12,100 hp gas turbine-driven compressor units to be added at stations 9 and 21. The cost of supporting this investment for one year would be \$109,600.

Trans-Canada testified that the two 12,100 hp gas turbine-driven compressor units proposed for stations 9 and 21 were to be purchased from Associated Electrical Industries of the United Kingdom, and that the components for these units had not been previously combined for use in gas service. However, the units offered certain technical and operational advantages for gas service, such as a quick start-up of the unit, which could not be obtained with other equipment. The installation of these units six months in advance of the time when they would be required for service would provide for a testing period which the Applicant considered prudent for a new type of installation.

The Applicant proposed to terminate its loop sections in the western portion of its system at main line valves and thus avoid "hot tap" connections. In seven locations this necessitated additional looping beyond that required for 1969-70 design flows. However, the additional lengths of loop would be required for 1970-71 flows and the Applicant submitted a comparative study which showed that the carrying cost of the investment in loop one year in advance of requirement was approximately equal to the costs which would have been incurred by "hot tap" connections.

At the time of the hearing certain portions of the Great Lakes system were restricted to an operating pressure of 677 psig. This reduction in pressure from the original allowable working pressure of 975 psig was imposed by United States regulatory authorities following two operational pipe line failures. In preparing the data used in Appendices 4, 5 and 6 of this Report relating capabilities to requirements, Trans-Canada had assumed that the present restricted operating pressures in those sections of the interconnected Great Lakes system would be restored to the original design operating pressure of 975 psig. Subsequent to the hearing, Trans-Canada notified the Board that, effective 7 April 1969, United States authorities had modified the maximum permissible operating pressures to 750 psig in one section and 812 psig in another.

A study was submitted by the Applicant demonstrating that, with these operating levels of 750 and 812 psig on the Great Lakes system, the capability of the combined systems would have a small surplus of 0.8 Bcf over requirements by the end of the construction season, i.e. 31 October 1969. However, the study also showed that, if these revised pressure restrictions remained in effect and if the option provided for in the contract for the sale of 25 Bcf to Tennessee Gas were exercised, (i.e. whereby either party may cancel the export if the pressure restriction on the Great Lakes system is not completely removed by 16 June 1969), the combined systems, upon completion of this facilities program, would have a capacity slightly less than requirements to the extent of 0.8 Bcf during the 1969-70 winter season, and to the extent of 18.9 Bcf during the 1970 summer season.

The Applicant said that Great Lakes intended to inspect its pipe line for defects using an internal travelling inspection device ("electronic pig"), in those areas where restricted operating pressures had been imposed. It was stated that this inspection would take place during the last two weeks of April and it was expected that, as a result of the investigation, Great

Lakes would be able to satisfy the United States authorities that removal of the pressure restrictions could safely be authorized.

The proposed 212 miles of 36-inch OD main line looping in the western section of Trans-Canada's system would constitute a continuation of the 1968 looping program. The pipe proposed for this program, although of the same diameter as in the previous year's construction, would be of API 5LX 65 specification rather than API 5LX 60.

Trans-Canada stated it intended to continue to maintain a 30-foot separation between its lines of pipe in the looping program. Between Burstall and Winnipeg it was in the process of acquiring an additional 90-foot width of right-of-way to provide for the proposed looping program and for future expansion. Between Winnipeg and Emerson, the looping generally would be on the existing right-of-way, but, in those locations where it was not, Trans-Canada was acquiring an additional 35-foot width of right-of-way. The Applicant did not anticipate any need for expropriation in acquiring new right-of-way for this year's construction program.

It was stated that, as in previous years, the Applicant intended to comply with all existing requirements in respect of land usage. In those areas where tile drains

might be encountered, Trans-Canada proposed to re-establish tile drains at the proper elevations. In all other respects regarding both open and closed drains, Trans-Canada would conform to the Board's requirements.

It was proposed to continue a program of hydrostatic retesting and sandblasting on the western section and the Emerson extension by undertaking 480 miles of such work. A similar program on the line through Northern Ontario would consist of 628 miles of sandblasting between Winnipeg and Bracebridge and 46 miles of hydrostatic retesting between Barrie and Toronto. The Applicant stated that additional sandblasting of the 30-inch line between Winnipeg and Toronto would not improve the throughput capability of this section of the line at this time. Any additional increase in capability would require looping, particularly between Winnipeg and Port Arthur.

Trans-Canada stated that it intended to upgrade the entire 111 miles of pipe line between Maple and the Niagara River by both sandblasting and hydrostatic retesting and, upon completion of this program, to operate the section at higher pressures. It stated it wished to carry out this program at this time regardless of whether the Tennessee Gas export occurred because the resulting increased capability could be used for future exports or to import larger volumes of gas in emergencies.

Trans-Canada stated that, in order to assess the maximum allowable operating pressures appropriate to the Maple-Niagara pipe line, it would conduct a population density index survey in accordance with the methods set out in the C.S.A. Standard Z184-1968. This would be carried out as soon as ground conditions and weather permitted and a copy of the results would be submitted to the Board.

In the light of this survey and the hydrostatic testing, Trans-Canada would review its present maximum allowable operating pressures in accordance with the limits set out in C.S.A. Standard Z184-1968 and, where necessary, make an application to the Board to vary them.

The Applicant stated that it was presently in the process of completely revising its 1968 construction specifications, particularly in respect of the prevention of mechanical damage by construction equipment, and that it would file copies of the revised specifications with the Board.

The Applicant reaffirmed its policy of purchasing all materials in Canada wherever possible. The pipe to be installed in this construction program would be produced by Canadian mills using Canadian steel plate. Taking the program as a whole, the Canadian content would be 80 to 85 per cent.

With the exception of two gas turbines at compressor stations 9 and 21, all of this work would be completed by 31 October 1969.

Conclusions

The Board is satisfied that the facilities of the combined systems, including those proposed, will be adequate to meet Trans-Canada's requirements through 1969-70, provided that the maximum allowable operating pressure on the Great Lakes system is restored to normal.

The Board will continue to review with Trans-Canada the capabilities of the combined systems in the light of circumstances as they develop.

FINANCIAL

Evidence

In support of its amended application, Trans-Canada filed:

- (a) a summary of facilities and construction cost estimates,
- (b) a schedule of its estimated cost of transmission for the years commencing 1 January 1968, 1969 and 1970,
- (c) a cash projection summary for the years commencing 1 January 1968, 1969 and 1970,
- (d) financial forecasts covering the calendar years 1968, 1969 and 1970, including balance sheets, statements of estimated operating and maintenance expenses, statements of estimated revenues and expenses applicable to regulated activities and statements of estimated rate base, return anticipated and per cent return on rate base.

In addition to the information required to be filed in support of an application for a Certificate of Public Convenience and Necessity, Trans-Canada submitted a statement showing a calculation of the capital cost of facilities required for the export sale to Tennessee Gas and for the replacement of the import from that source with gas from Western Canada. The net benefit accruing specifically to these facilities for the contract year 1969-70 was stated to be \$2,297,200.

At the hearing the Applicant stated that the estimated cash deficiency at 31 December 1969 of \$118,769,000 would be met, in part, by the sale of the remaining bonds under a bond purchase agreement, the details of which

were described in the Board's Report to the Governor in Council of April 1968. The Applicant testified that the remaining unissued bonds amounted to U.S. \$90,000,000 (approximately Can. \$97,000,000). In addition, approximately \$20,000,000 in short-term bank borrowings would be arranged to meet the estimated cash deficiency.

The Applicant stated that the sale of the remaining U.S. \$90,000,000 principal amount of first mortgage bonds had been postponed, as provided for in the agreements, pending satisfaction of a number of conditions to be met relating to the Great Lakes project. The principal condition involves the disposition of all appeals or administrative proceedings pertinent to the certificate granted by the Federal Power Commission to Great Lakes. At the time of the hearing the Applicant was carrying on discussions with the bond purchasers in this connection and was confident that these bonds would be sold.

The Applicant further testified that its total bank lines of credit amounted to approximately \$104,000,000. As at 24 March 1969, Trans-Canada was indebted to banks in Canada and the United States in the aggregate amount of \$50,940,000. The early stages of the 1969 construction program would be financed by the use of bank credit while the anticipated proceeds from the sale of the U.S. \$90,000,000 in bonds referred to above would be used to

reduce bank loans and the final stage of the 1969 program would be financed by short-term bank loans.

Net income for the calendar years 1969 and 1970 was forecast by the Applicant to amount to \$21,890,000 and \$22,887,000 respectively. This excluded revenues and expenses associated with the proposed export to Tennessee Gas of 25 Bcf of gas during the 1969-70 contract year. The Applicant's net income for 1968, before provision for dividends on preferred shares, was shown in its Annual Report to Shareholders dated 10 March 1969, as \$17,273,598.

Counsel for the Attorney General for Ontario questioned whether the benefits of the proposed sandblasting and hydrostatic testing, referred to in the "Facilities" section of this report, would be sufficiently enduring that the expenditure should be capitalized, thereby increasing the Company's earnings base. He also questioned whether, if the capitalization of such expenditures were found to be proper, a rate of depreciation based on the remaining service life of the pipe line would be appropriate. He suggested that the expenditure might be treated as a deferred charge and amortized in some other manner.

Trans-Canada testified that it considered the benefits derived from sandblasting to be of a permanent nature, and that it was the Company's intention to capitalize sandblasting and hydrostatic testing expenditures. However, in

response to a question from the Board's Counsel, the Applicant indicated that it would apply to the Board for permission to capitalize sandblasting and hydrostatic testing expenditures for accounting purposes.

Conclusions

The Board is satisfied that the Applicant can successfully secure the funds necessary to finance the facilities in this application.

While the Board does not necessarily agree with all of the calculations submitted pertaining to the costs and benefits of the agreement related to the proposed sale of 25 Bcf of gas to Tennessee Gas, it is satisfied that the investment in the additional facilities particularly required for this purpose will result, if the export occurs, in a surplus of revenues over net incremental costs of approximately the amount estimated by Trans-Canada.

In connection with the intervention of the Attorney General for Ontario as related to sandblasting, the Board is cognizant of the argument raised by this intervenor but is of the opinion that this matter pertains to a determination of rate base and that it has no material effect on the Applicant's ability to finance the facilities in question.

DISPOSITION

The Board has given careful consideration to all the evidence presented to it in respect of this application and is satisfied as to the reasonableness of the estimates of markets to be served by the Applicant, the ability to finance the proposed construction and the degree of Canadian participation in the construction program.

With regard to the representations of the Attorney General for Ontario as to the importance of safety, this is a matter with which the Board is continuously concerned and it will assure itself that the Applicant continues to observe satisfactory safety standards.

The Board also appreciates and shares the interest of the Attorney General for Ontario in the accounting treatment of sandblasting and hydrostatic testing expenditures. However, a final decision on this question is not a prerequisite to the disposition of this application.

The Board finds that the facilities applied for are and will be required by the present and future public convenience and necessity.

Subject to the approval of the Governor in Council, the Board, therefore, will issue to Trans-Canada a certificate of public convenience and necessity in respect of the proposed additional facilities upon the following terms and conditions:

1. The additional pipe line shall be the property of and be operated by the Applicant.
2. (1) The Applicant shall cause the additional pipe line in respect of which this Certificate is issued to be designed, manufactured, constructed and installed in accordance with those specifications and drawings which are set forth in the application as amended and those which have otherwise been filed with the Board.

(2) No variation in the specifications and drawings referred to in subsection (1) shall be made without the prior approval of the Board.
3. The testing of the additional pipe line shall be carried out in conformity with the Board's requirements.
4. The construction and installation of the additional pipe line, with the exception of those additional compression facilities and other works connected therewith at the Applicant's compressor stations 9 and 21, shall be completed before 31 October 1969, unless upon application by Trans-Canada a later day is fixed by the Board.

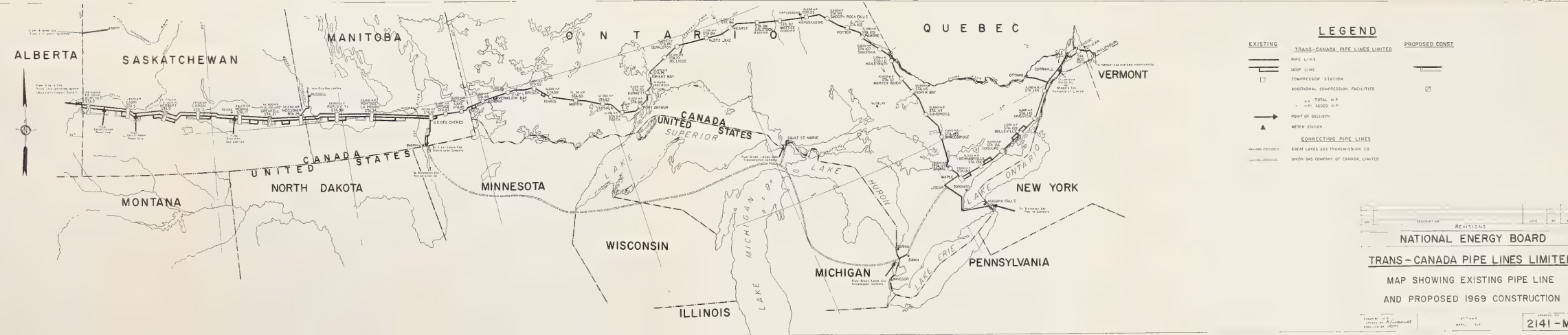
5. The construction and installation of the additional compression facilities and other works connected therewith at the Applicant's compressor stations 9 and 21 shall be completed before 31 October 1970, unless upon application by Trans-Canada a later day is fixed by the Board.

All of which is respectfully submitted.


(Vice-Chairman)


(Member)


(Member)



DETAILS OF THE APPLICATION AS AMENDED

The application is for a certificate under Part III of the Act to construct and operate additional pipe line facilities, namely:

A. PIPE LINE

Main Line:

Loop of approximately 128.6 miles of 36-inch OD pipe line in the Province of Saskatchewan, and 1.1 miles in the Province of Alberta,

Loop approximately 65.0 miles of 36-inch OD pipe line in the Province of Manitoba,

Upgrading by hydrostatic testing and/or sandblasting:

approximately 461.8 miles of 34-inch OD pipe line in Saskatchewan and Manitoba,

approximately 110.5 miles of 20-inch OD and 24-inch OD pipe line on the Maple-Niagara line,

approximately 674.5 miles of 30-inch O.D. pipe line between Winnipeg and Toronto, and

Emerson Line:

Loop approximately 17.9 miles of 36-inch OD pipe line in the Province of Manitoba,

Upgrading by hydrostatic testing and sandblasting:

approximately 17.9 miles of 30-inch OD pipe line in the Province of Manitoba,

together with works connected therewith, and

B. COMPRESSOR STATIONS

Station 2 near Burstall, Saskatchewan - one 12,100 hp turbine-driven centrifugal compressor,

Station 9 near Herbert, Saskatchewan - one 12,100 hp turbine-driven centrifugal compressor,

Station 21 near Grenfell, Saskatchewan - one 12,100 hp turbine-driven centrifugal compressor,

- 2 -

Upgrading by hydrostatic testing, yard piping in
Stations 2, 17, 21, 25, 30, 34, 127, 130 and 139,
together with works connected therewith.

TRANS-CANADA PIPE LINES LIMITEDESTIMATED REQUIREMENTSCONTRACT YEARS COMMENCING 1 NOVEMBER 1968 AND 1969

(At 14.73 p.s.i.a., 60°F and 1,000 Btu per cubic foot)

	<u>Annual Deliveries (Bcf)</u>	
	<u>1968-69</u>	<u>1969-70</u>
Canadian Sales	461	510
United States		
Export Sales	<u>138</u>	<u>177</u>
Total Sales	<u>599</u>	<u>687</u>
Fuel, Losses, etc.	<u>48</u>	<u>52</u>
Total Requirements	<u>647</u>	<u>739</u>
<u>Deduct</u>		
Imports from United States	<u>31</u>	<u>-</u>
Requirements from Western Canada	<u>616</u>	<u>739</u>
Transportation for Saskatchewan Power Corporation	26	29

TRANS-CANADA PIPE LINES LIMITED

WINTER DAILY & SEASONAL SYSTEM CAPABILITIES VERSUS REQUIREMENTS IN OPERATING YEAR 1966-70

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	REMARKS
CAPABILITIES MAXIMUM DAY MUCF	REQUIREMENTS MAXIMUM DAY MUCF	SURPLUS CAPABILITY (2)-(3)	REDUCTION IN CAPACITY DUE TO LOSS OF A COM- PRESSOR UNIT AT THE MOST CRITICAL LOCATION IN THAT SECTION MUCF/D	NET DEFICIENCY TO REQUIREMENTS WITH CRITICAL UNIT BREAK- DOWN MUCF/D (4)-(3)	SEASONAL REQUIREMENTS (151 DAYS) BCF	AVERAGE DAY THROUGHPUT TO MEET TOTAL SEASONAL REQUIREMENTS MUCF/D (6) ÷ 151	SURPLUS CAPABILITY OVER AVERAGE DAY THROUGHPUT WITH LOSS OF CRITICAL UNIT MUCF/D (1)-(7)	SURPLUS CAPABILITY OVER AVERAGE DAY THROUGHPUT WITH LOSS OF CRITICAL UNIT MUCF/D (8)-(4)	TOTAL INTER- URABLE SALES MUCF/D	
<u>LINE EAST OF MAPLE, ONTARIO</u>										
1. TOTAL CAPABILITY	398									
2. LOSSES	<u>-2</u>									
3. NET THROUGHPUT	396									
		376	20	23	3	52.5	348	48	25	NIL
<u>DOWNSTREAM OF STATION #41 NEAR WINNIPEG</u>										
4. NORTHERN ONTARIO LINE TOTAL CAPABILITY	668									
5. GREAT LAKES LINE TOTAL CAPABILITY	728									
6. EMERSON EXTENSION	344									
7. CANADIAN FUEL AND LOSSES	<u>-95</u>									
8. NET THROUGHPUT	1875									
		1760	11	129	14	259.7	1720	155	26	374
<u>DOWNSTREAM OF EXPRESS DATE</u>										
9. WESTERN SECTION TOTAL CAPABILITY	2393									
10. FUEL AND LOSSES	<u>-86</u>									
11. NET THROUGHPUT	2307									
		2169	138	205	67	316.6	2097	210	5	374

SECTION HAS SURPLUS DAILY CAPABILITY, HOWEVER IF MAXIMUM W.P.S. DELIVERY COINCIDES WITH THE WORST LOSS OF UNIT THE DEFICIENCY LISTED IN COLUMN 5 WILL BE SERVED FROM LINE PACK.

THE DOWNSTREAM SYSTEMS DOWNSTREAM OF STATION 41 EXCEEDS DAILY FIRM REQUIREMENTS WITH LOSS OF ANY ONE UNIT ON THE SECTION. SEASONAL CAPABILITY OF SYSTEMS ALSO EXCEEDS SEASONAL REQUIREMENTS.

THE SYSTEM CAPABILITY EXCEEDS DAILY FIRM REQUIREMENTS WITH LOSS OF ANY ONE UNIT ON THE SECTION. SEASONAL CAPABILITY OF SYSTEMS ALSO EXCEEDS SEASONAL REQUIREMENTS.

NOTES

- DAILY AND SEASONAL REQUIREMENTS SHOWN ON LINE 11 INCLUDE FUEL AND LOSSES DOWNSTREAM OF STATION 41.
- THE ADJACENT TABULATION IS THE COMPARISON OF THE MAXIMUM DAILY CAPABILITIES AND REQUIREMENTS SHOWN ON LINE 11.

	MAXIMUM DAY CAPABILITIES MUCF/D	MAXIMUM DAY REQUIREMENTS MUCF/D
WESTERN SECTION AND MIDWESTERN GAS SALES, INCLUDING S.P.C. TRANSPORTATION, BUT EXCLUDING SALES ON UNITY LINE	655	655
NORTHERN ONTARIO LINE CAPABILITY	608	{ 1514
AVAILABLE FOR GREAT LAKES LINE	754	
TOTAL	2307	2169

TRANS-CANADA PIPE LINES LIMITED
ANNUAL SYSTEM CAPABILITIES VERSUS REQUIREMENTS
IN OPERATING YEAR 1969-70

Appendix 6

	(1)	(2)	(3)	
	CAPABILITIES	REQUIREMENTS	SURPLUS	REMARKS
	BCF	BCF	CAPABILITY	
	BCF	BCF	BCF	
<u>LINE EAST OF MAPLE, ONTARIO</u>				
1. Total Capability	129.5			Annual Capability of the system exceeds Requirements.
2. Losses & Company Uses	-0.7			
3. Net Throughput	128.8			
		115.0	13.8	
<u>DOWNSTREAM OF STATION #41 NEAR WINNIPEG</u>				
4. Northern Ontario Line				Annual Capabilities of the combined system exceed Requirements.
Total Capability	292.9			
5. Great Lakes Line				
Total Capability	262.5			
6. Emerson Extension	117.7			
7. Canadian Fuel, Losses and Company Uses	-29.5			
8. Net Throughput	643.6	617.8	25.8	
<u>DOWNSTREAM OF EMPRESS GATE</u>				
9. Western Section				Annual Capability of the system exceeds Requirements.
Total Capability	782.0			
10. Fuel, Losses and Company Uses	-27.8			
11. Net Throughput	754.2	726.8	27.4	

NOTES

1. The Annual Requirements shown on Line 11 include Fuel, Losses and Company Uses downstream of Station 41.
2. The following tabulation is the comparison of annual capabilities and requirements shown on Line 11.

	ANNUAL CAPABILITIES BCF	ANNUAL REQUIREMENTS BCF
Western Section and Midwestern Gas Sales, including S.P.C. Transportation, but excluding sales on Unity Line	196.6	196.6
Northern Ontario Line Capability	292.9	(530.2
Available for Great Lakes Line	264.7	(
TOTAL	754.2	726.8

Prepared by:
Trans-Canada Pipe Lines Limited

